

With respect to the use of the term "thickener" Applicant respectfully submits that this term is an accepted term in the art as exemplified by US Patent 6,197,318 which is of record in this case. The '318 patent utilizes this terminology in column 2, line 19, column 10, line 4, column 9, line 40, and column 27, line 41. Still further, the word "thicken" has common meaning in the dictionaries as shown in the attached copies. Applicant, therefore, respectfully submits that this term has meaning in the English language and in the art as exemplified by the '318 reference. For this reason, the rejection is respectfully traversed. Applicant has, however, throughout the specification corrected the spelling to read "thicken" which is the correct English spelling.

Next, Applicant has noted that the Examiner has referred to the terms "dropping", "dropping from hair" or "dripping from hair". Changes have been made in order to comply with the Examiner's request.

Paragraph Two

In paragraph number two the Examiner has noted certain informalities in the specification. These have been corrected.

Claim Objections

Claim 79 has been corrected as suggested.

Claim Rejections - 35 USC § 112

In paragraph five, the Examiner has rejected claims 1 - 81 because the terms "complex" and "complex nucleus" lack a reasonable degree of particularity. In response, Applicant has amended all of

the claims which refer to "complex nucleus" to the language "multivalent metal ion". Since this amendment has been made, certain claims, such as claim 4, have been deleted. Next, the term "complex" has been amended to refer to a complex compound which is in conformance with standard terminology found in the dictionary, such as the McGraw-Hill Dictionary of Chemical Terms, attached hereto.

In paragraph six the Examiner has rejected claims 1 - 19 and 73 - 81 on the grounds that the term "hair dye fixative" lacks a reasonable degree of particularity and distinctness which distinguishes the entity from a "hair dye" as claimed. Applicant respectfully traverses this rejection. Applicant's specification refers to the fixative effect of the aqueous solution of aluminum chloride at page 22. Also at the top of page 24, there is reference to the fixative effect of which is separate from the hair dye. Therefore, the specification at pages 22 - 25 show that the fixative operates separately from the hair dye and has nothing to do with the hair to which the Examiner refers to, but is instead used to fix the dye in the hair.

Claim Rejections - 35 USC § 103

Dias, et al. '426

The essential difference between Applicant's invention and that of '426 is that Dias is an oxidation dye or oxidative coloring agent, (see '426, Background of the Invention, columns 1 and 2).

On the other hand, Applicant's invention relates to an acid hair dye. These two hair dyes are distinct articles in the hair dye market.

Claims 21 - 57 and 60 - 81 have been rejected as being unpatentable over Dias '426 in view of Abe '318. There are no other prior art rejections in this Office Action. Applicant respectfully traverses the above stated prior art rejections.

In a telephone call between the undersigned and the Examiner, The undersigned questions why claim 21 was rejected under prior art, while claim 20 was not. The Examiner responded that claim 20 was not understandable relying upon the rejection under 35 USC § 112. This is believed to be incorrect because if claim 20 were not understandable, then claims 21 and all other claims dependent from claim 20 would also be not understandable and, therefore, not rejectable on prior art.

Next, the Office action has indicated that claims 58 and 59 are allowable. Claims 58 and 59 depend from claim 50 which is in turn dependent from claim 44 which has also been rejected under 35 USC § 112. Claim 44 was not rejected under 35 USC § 103. On the other hand, since claims 58 and 59 are allowable, it would appear that claim 44 was clearly understandable in the first instance. For this reason, it is believed that claim 44 stands allowed at this time.

According to the Examiner, the ingredients of the present invention are included in the oxidation hair dye of Dias et al. However, these are ingredients which can be incorporated as an

option. Basically, the hair dye of Dias et al. comprises some essential ingredients to function as a general oxidation hair dye (oxidative dye and oxidizing agent). It will be impossible to obtain the effect of the present invention under existence of essential ingredients of an oxidation hair dye, and it will also be true in the case of Dias, et al.

In Dias et al, multivalent metal is used as a catalyst for oxidative reaction. And an acid is used as only pH adjusting agent. There is no disclosure of how to use as claimed in the present invention.

Also, there is no disclosure of use of an organic solvent having quantitative and qualitative characteristics which do not allow the acid dye to form a dye complex with multivalent metal ion. Namely, formation of a dye complex occurs after application of the hair dye of the present invention. This is not disclosed in Dias et al.

As to the mixing type hair dye of the present invention wherein a mixture of two compositions is prepared before use, the present invention divides an acid dye and multivalent metal ion before mixing. On the other hand, a general oxidation hair dye (which includes the hair dye of Dias et al) divides the oxidative dye and the oxidizing agent before use. The concept of the Applicant's invention to divide into two components before use is different from that of Dias et al, or any general oxidation hair dye.

The hair dye of Dias et al is an oxidation dye. It is only collection of optionally containable ingredients in oxidation hair dye that the Examiner referred to. Generally, it will be impossible to incorporate the essential ingredients of an oxidation dye (oxidative dye and oxidizing agent) into a general acid hair dye because merits of an acid hair dye will be lost. Dias et al does not disclose the concept of the present invention.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with Markings to Show Changes Made."

In view of the foregoing, it is respectfully submitted that the application is now in condition for allowance, and early action in accordance thereof is requested. In the event there is any reason why the application cannot be allowed in this current

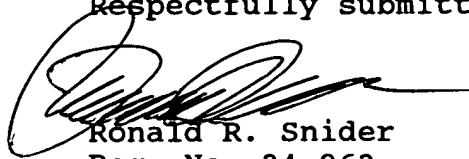
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9/30/2002

DOCKET NO.: IWA-168-USAP

condition, it is respectfully requested that the Examiner contact the undersigned at the number listed below to resolve any problems by Interview or Examiner's Amendment.

Respectfully submitted,



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Date: September 30, 2002

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VERSION WITH MARKINGS TO SHOW CHANGES MADEIn the Specification:

Please find attached a marked-up copy of the specification showing the amendments to be made and a new clean copy of the revised specification.

In the Claims:

Claims 4, 24, 49, 74, 77 and 80 have been canceled.

Claims 1, 5, 12, 20, 34, 44, 50, 61, 73, 75, 76, 78, 79, and 81 have been amended as follows:

1. (Amended) A hair dye fixative comprising a [complex nucleus] multivalent metal ion capable of forming a complex compound with an acid dye.

5. (Amended) A hair dye fixative according to Claim [4] 1 wherein a combination amount of said multivalent metal ion is 0.1 to 20 % by weight in terms of a weight of the corresponding metal salt.

12. (Amended) A hair dye fixative according to Claim 1 wherein said [complex nucleus] multivalent metal ion is aluminum ion.

20. (Amended) A hair dye comprising:
an acid dye;

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a [complex nucleus] multivalent metal ion capable of forming a complex compound with said acid dye; and,

an organic solvent having quantitative and qualitative characteristics which do not allow said acid dye to form a dye complex with said [complex nucleus] multivalent metal ion.

34. (Amended) A hair dye according to Claim 20 wherein said [complex nucleus] multivalent metal ion is aluminum ion.

44. (Amended) A mixing type hair dye wherein a mixture of two compositions is prepared before use and the mixture is applied to hair consisting of:

a first composition comprising an acid dye; and

a second composition comprising a [complex nucleus] multivalent metal ion capable of forming a complex compound with said acid dye.

50. (Amended) A hair dye according to Claim [49] 44 wherein a second composition comprises said multivalent metal in an amount of 0.1 to 20 % by weight in terms of a weight of the corresponding metal salt.

61. (Amended) A hair dye according to Claim 44 wherein said [complex nucleus] multivalent metal ion is aluminum ion.

73. (Amended) A hair dyeing method characterized by treating the hair with a hair dye fixative comprising a [complex nucleus] multivalent metal ion capable of forming a complex compound with an acid dye, and then dying a hair with an acid dye.

75. (Amended) A hair dyeing method according to Claim 73 wherein said [complex nucleus] multivalent metal ion is aluminum ion.

76. (Amended) A hair dyeing method characterized by dyeing a hair with an acid dye and simultaneously treating the hair with a hair dye fixative comprising a [complex nucleus] multivalent metal ion capable of forming a complex compound with said acid dye.

78. (Amended) A hair dyeing method according to Claim 76 wherein said [complex nucleus] multivalent metal ion is aluminum ion.

79. (Amended) A hair dyeing method characterized by [dying] dyeing a hair with an acid dye and then treating the hair with a hair dye fixative comprising a [complex nucleus] multivalent metal ion capable of forming a complex compound with said acid dye.

81. (Amended) A hair dyeing method according to Claim 79 wherein said [complex nucleus] multivalent metal ion is aluminum ion.



McGraw-Hill Dictionary of **CHEMICAL TERMS**

Sybil P. Parker

EDITOR IN CHIEF

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combining-volumes principle The principle that when gases take part in chemical reactions the volumes of the reacting gases and those of the products (if gaseous) are in the ratio of small whole numbers, provided that all measurements are made at the same temperature and pressure. Also known as Gay-Lussac law.

combining weight The weight of an element that chemically combines with 8 grams of oxygen or its equivalent.

combustion The burning of gas, liquid, or solid, in which the fuel is oxidized, evolving heat and often light.

combustion efficiency The ratio of heat actually developed in a combustion process to the heat that would be released if the combustion were perfect.

combustion furnace A heating device used in the analysis of organic compounds for elements.

combustion rate The rate of burning of any substance.

combustion train The arrangement of apparatus for elementary organic analysis.

combustion tube A glass, silica, or porcelain tube, resistant to high temperatures, that is a component of a combustion train.

combustion wave 1. A zone of burning propagated through a combustible medium.
2. The zoned, reacting, gaseous material formed when an explosive mixture is ignited.

common-ion effect The lowering of the degree of ionization of a compound when another ionizable compound is added to a solution; the compound added has a common ion with the other compound.

common salt See halite; sodium chloride.

comonomer One of the compounds used to produce a specific polymeric product.

comparator-densitometer Device that projects a labeled spectrum onto a screen adjacent to an enlarged image of the spectrum to be analyzed, allowing visual comparison.

comparison spectrum A line spectrum whose wavelengths are accurately known, and which is matched with another spectrum to determine the wavelengths of the latter.

competing equilibria condition The competition for a reactant in a complex chemical system in which several reactions are taking place at the same time.

complete combustion Combustion in which the entire quantity of oxidizable constituents of a fuel is reacted.

complexation See complexing.

complex chemical reaction A chemical system in which a number of chemical reactions take place simultaneously, including reversible reactions, consecutive reactions, and concurrent or side reactions.

complex compound Any of a group of chemical compounds in which a part of the molecular bonding is of the coordinate type.

complexing Formation of a complex compound. Also known as complexation.

complexing agent A substance capable of forming a complex compound with another material in solution.

complex ion A complex, electrically charged group of atoms or radical, for example, $\text{Cu}(\text{NH}_3)_2^{2+}$.

complexometric titration A technique of volumetric analysis in which the formation of a colored complex is used to indicate the end point of a titration. Also known as chelatometry.

consolute Of or pertaining to liquids that are perfectly miscible in all proportions under certain conditions.

constant-current electrolysis Electrolysis in which a constant current flows through the cell; used in electrodeposition analysis.

constant-potential electrolysis Electrolysis in which a constant voltage is applied to the cell; used in electrodeposition analysis.

constant series *See* displacement series.

constitutional isomers Isomers which differ in the manner in which their atoms are linked.

constitutive property Any physical or chemical property that depends on the constitution or structure of the molecule.

contact acid Sulfuric acid produced by the contact process.

contemporary carbon The isotopic carbon content of living matter, based on the assumption of a natural proportion of carbon-14.

continuous spectrum A radiation spectrum which is continuously distributed over a frequency region without being broken up into lines or bands.

continuous titrator A titrator so equipped that a reservoir refills the buret.

convergence pressure The pressure at which the different constant-temperature K (liquid-vapor equilibrium) factors for each member of a two-component system converge to unity.

conversion Nuclear transformation of a fertile substance into a fissile substance.

conversion Change of a compound from one isomeric form to another.

conversion coefficient Also known as conversion fraction; internal conversion coefficient. 1. The ratio of the number of conversion electrons emitted per unit time to the number of photons emitted per unit time in the de-excitation of a nucleus between two given states. 2. In older literature, the ratio of the number of conversion electrons emitted per unit time to the number of conversion electrons plus the number of photons emitted per unit time in the de-excitation of a nucleus between two given states.

conversion electron An electron which receives energy directly from a nucleus in an internal conversion process and is thereby expelled from the atom.

conversion fraction *See* conversion coefficient.

cool flame A faint, luminous phenomenon observed when, for example, a mixture of ether vapor and oxygen is slowly heated; it proceeds by diffusion of reactive molecules which initiate chemical processes as they go.

coordinate bond *See* coordinate valence; dative bond.

coordinated complex *See* coordination compound.

coordinate valence A chemical bond between two atoms in which a shared pair of electrons forms the bond and the pair has been supplied by one of the two atoms. Also known as coordinate bond.

coordination chemistry The chemistry of metal ions in their interactions with other molecules or ions.

coordination compound A compound with a central atom or ion and a group of ions or molecules surrounding it. Also known as coordinated complex; Werner complex.

coordination polygon The symmetrical polygonal chemical structure of simple polyatomic aggregates having coordination numbers of 4 or less.

Webster's Third
New International
Dictionary
OF THE ENGLISH LANGUAGE
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S to Z

and Britannica World Language Dictionary



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small tapering cup with a projecting arm used as a support for plates during firing in a kiln 1: a thumb-shaped cup or shell (as of filter paper or fritted glass) for containing material to

be extracted by solvents esp. in chemical analysis (extraction ~s). 3: THIMBLEFUL. 4 a: a foxglove (*Digitalis purpurea*) b: thimbles pl.; HAREBELL. 1
thimble and pea *n.* *Brit.* THIMBLINGO 1
thim-blo-ber-ry \thim-bəl- see BERRY *n.*: any of several American raspberries or blackberries having thimble-shaped fruit (esp. *Rubus occidentalis*, *R. parviflorus*, and *R. argutus*)
thimble cham-ber *n.* [so called fr. its shape and size]: an ionization chamber for measuring roentgens
thim-blo-gy \thim-bəl-*g* *n.* 1: CLUB MACKEREL. 2: an eye in a plate used esp. as a desiccator
thim-blo-low-er \thim-bəl-*l* *n.*: a self-heal (*Prunella vulgaris*) 2: a foxglove (*Digitalis purpurea*) 3: a gilia (*Gilia capitata*)
thim-blo-tail \thim-bəl-*t* *n.* 3: as much as a thimble will hold: a very small quantity
thim-ble-plant *n.*: bladder-nut (*Bladdieria nobilis*)

unhappy day. **2:** for its ornamental fragrance flowers **2:** a lily (*Lilium bolanderi*) of western U.S. that is used as an ornamental and has whorled leaves and red-purple flowers with darker spots

thin-bile-ritig \ˈthɪnbəlˌrɪŋ/ **n** 1: a slight-of-hand trick that is often practiced as a swindling operation (as at a fair) and that is played with three small cups shaped like thimbles and a small ball or pea that is so quickly shifted from under one cup to under another that the person watching is often misled — compare shell game **2:** THIMBLEROCKER

thimblerig \ˈvɪ ɪː 1: to swindle by thimblerig **2:** to cheat by thimblerig

thimbleweed \ˈθɪmbəlˌriːd/ **n** (so called fr. the conical receptacle) **1:** CORNFLOWER **2:** any of various anemones (as *A. wood-anemone*) **3:** a common No. American anemone with a *cyathoid* (synchroite) with silky leathery sepals and crimson petals **4:** a *cyathoid* (synchroite) with silken petals and crimson petals with white

thin:~metho:~aol Vht:~mer:~a:~al, ~mer:~\n ~s [prob. fr. *thi-* + ~mercury + ~o- + ~adjective] : a cream-colored crystalline organic mercurial $C_8H_7HgNaO_2S$ used in medicine and surgery as an antiseptic and germicide and also as a biological preservative; sodium ethyl-mercury-*thio-sulfate*, fr. OE *thyme*: *thin* 'thin, cool thinner'; thinnest [ME *thinn*, fr. OE *thynn*: akin to OHG *dunni* thin, ON *thynn*, OE *thennan* to stretch out, OHG *dennan* to stretch, ON *thengja*, Goth *uthrangan*, L *tendere* to stretch, *tendere* to hold, Gk *tethino* to stretch, Skt *tanati* he stretches] **1** a : having little extent from one surface to its opposite (~ paper) (~ layer of paint) (~ slice of intimacy) (~

com. **b** : measuring little in cross section. **c** : rope. **d** : not dense in arrangement of (tree) **e** : thin : not compactly set or disposed (arrang. of trees) **f** : rain : was falling (his hair was *fine*) **g** : not well fleshed : not filled out. **h** : plump or fat : spare, lean, skinny **i** : tips (long average *fine*) **j** : spry **k** : more hard or truffled than usual, (animal) **l** : **a** : more fluid or truffled than usual, (animal) **m** : **b** : having less than the usual number of persons (congregation) **n** : attendance at a meeting **o** : few in number : not abundant **p** : scarce **q** : scantily occupied, supplied or provided **r** : assortment of goods on the counter **s** : franks of volunteers **t** : *a mark* : characterized by a purely of bids or offerings so that transactions tend to be few and difficult to effect. **u** : wanting substance, strength, or richness from lack of a usual constituent : weak, unsatisfactory **v** : **a** : lacking in solidity, substance, or force : UNSUBSTANTIAL, **b** : **i** : wine **c** : diet **d** of soil : poor, INERTIAL, **e** : broth **f** : **i** : wine **j** : diet **k** of soil : poor, INERTIAL, **l** : **a** : lacking in solidity, substance, or force : UNSUBSTANTIAL,

INADEQUATE (rove) with a ~ pity, v. UNRELIABLE; the CONVINCING (~ excuse) o; not up to expectations of a *voice* appealingly poor or hard (have a ~ time of it), m. feeble and ~ wanting in fullness and resonance as a ~ but 't cry —Elliot
thrill (cheer) soundless laughter ~ richness of texture o (Wyle) b of *marrow* ~ with pitchless terrible and weak bass
reproduced sound (1) ~ with pitchless terrible and weak bass tones (2) ~ with a narrow range of overtones d of a *speech* ~ (3) ~ ~ b of a *light*; wanting in radiance o of ~ winter sunshine b of a *color*; lacking in intensity or brilliance ~ dull g; easily seen through or penetrated; TRANSPARENT, flimsy (~ pretext) (~ disguise) b; ready to snap or give way (this patience was wearing ~) ~ 10 of a *photographic negative* or *print*; lacking sufficient density or contrast (overexposure produces ~ images —E.F. Brewster)

implies comparatively little extension between two surfaces (all *thin* board) (a *thin* layer of frosting) or a comparatively small diameter of a cylindrical or roughly cylindrical object (a *thin* portion to its length (a *thin* neck)) and it implies also a compactness or density (a *thin* face) (a *thin* soup) (*thin* hair) (a play that is pretty *thin* in plot). *SLENDER* chiefly implies leanness or sparseness without suggesting gauntness or lankiness, usu. connoting gracefulness and good proportions (*slender* hands) (a *slender* figure) and is similar to *thin* though implying, not strongly, a meagreness or scantiness (a *slender* chance of success in an enterprise) (*slender* a further chance of success). *SLIM* is much like *slender* but is usually applied to persons or animals, though also to things, and implies more fragility, gauntness, or lack of fullness or good proportion (very *slim* children) and it is like *slender* in extended meaning, though stressing meagreness and scantiness more strongly (a *slim* chance of